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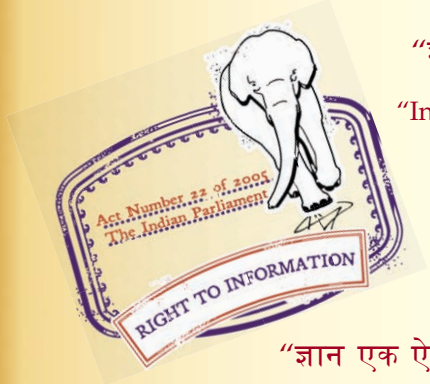
IS 8271-2-4 (1981): Quartz Crystal Units Used in Oscillators, Part 2: Series AA, Section 4: Quartz Crystal Unit Type AA-04 [LITD 5: Semiconductor and Other Electronic Components and Devices]



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Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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UDC 621·373·5

IS : 8271 (Part II/Sec 4) - 1981
[Superseding IS : 2916 (Part V) - 1972]

Indian Standard

(Reaffirmed 2001)

SPECIFICATION FOR QUARTZ CRYSTAL UNITS USED IN OSCILLATORS

PART II SERIES AA

Section 4 Quartz Crystal Unit Type AA-04

Piezoelectric Devices for Frequency Control and Selection Sectional Committee, LTDC 12

0. General — This standard shall be read in conjunction with IS : 8271 (Part I)-1981 'Specification for quartz crystal units used for frequency control and selection: Part I General requirements and tests (*first revision*) '.

1. Outline and Dimensions — Holder outline shall conform to type AA (*see* sheet 1A of IS : 4570-1968 ' Specification for crystal holders ').

2. Marking — *See* **8** of IS : 8271 (Part I)-1981.

3. Construction and Workmanship — *See* **7** of IS : 8271 (Part I)-1981.

4. Test Schedule and Detail Requirements

4.1 *General Conditions for Test* — *See* **9.2** of IS : 8271 (Part I)-1981.

4.2 *Test Schedule* — The sequence and grouping of type, routine and acceptance tests shall be as per **9.1** of IS : 8271 (Part I)-1981.

4.3 *Detail Requirements* — The detail requirements applicable to this particular type of crystal unit shall be as specified in Table 1.

TABLE 1 DETAIL REQUIREMENTS OF QUARTZ CRYSTAL UNIT TYPE AA-04

Characteristic (1)	Requirement (2)	
a) Type of holder	AA (*See* **1**)	
b) Frequency range	1 to 20 MHz	
c) Frequency tolerance:		
Over operating temperature range	±30 ppm	
d) Resonance resistance	*See* Table 2	
e) Mode of oscillation	Fundamental	
f) Load capacitance	32±0·5 pF	
g) Capacitance shunt	7 pF, Maximum	
h) Operating temperature range	−20°C to +70°C	
j) Test set, calibration values and rated drive level	*See* Table 3	
k) Shock [as per **9.15** (Severity A) of IS : 8271 (Part I)-1981]:	*1 to 2·0 MHz*	*Over 2·0 to 20 MHz*
i) Frequency change permitted	±10 ppm	±5 ppm
ii) Resonance resistance change permitted	±15 percent	±10 percent
m) Vibration [as per **9.16.1** (Severity A) of IS : 8271 (Part I)-1981]:		
i) Frequency change permitted	±10 ppm	±5 ppm
ii) Resonance resistance change permitted	±15 percent	±10 percent
n) Temperature cycling:		
i) Frequency change permitted	±10 ppm	±5 ppm
ii) Resonance resistance change permitted	±15 percent	±10 percent
p) Temperature run:		
i) Frequency change permitted	±10 ppm	±5 ppm
ii) Resonance resistance change permitted	±15 percent	±10 percent
q) Ageing:		
Frequency change permitted	5 ppm	—

Adopted 8 May 1981

Price Rs 5·00

Gr 1

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NEW DELHI 110002

TABLE 2 RESONANCE RESISTANCE

[*Table* 1(d)]

Frequency Range	Maximum Resonance Resistance	Frequency Range	Maximum Resonance Resistance
MHz	ohms	MHz	ohms
(1)	(2)	(1)	(2)
From 0·9 to 1	580	Over 3·4 to 3·75	90
Over 1 to 1·12	540	Over 3·75 to 4	75
Over 1·12 to 1·25	490	Over 4 to 5	60
Over 1·25 to 1·37	450	Over 5 to 7	35
Over 1·37 to 1·5	410	Over 7 to 10	24
Over 1·5 to 1·62	380	Over 10 to 15	22
Over 1·62 to 1·75	330	Over 15 to 20	20
Over 1·75 to 1·87	300		
Over 1·87 to 2	290		
Over 2 to 2·12	270		
Over 2·12 to 2·25	250		
Over 2·25 to 2·6	200		
Over 2·6 to 3	150		
Over 3 to 3·4	110		

TABLE 3 TEST SET, CALIBRATION VALUES AND RATED DRIVE LEVEL

[*Table* 1(j)]

Sl No.	Frequency Range	Calibration Values			Rated Drive Level
		Resistance	Crystal Current	Resistor Voltage Drop	
	MHz	ohms	mA	V	mW
(1)	(2)	(3)	(4)	(5)	(6)
1.	From 0·8 to 1·5	100	10	—	10·0±2·0
2.	Over 1·5 to 2·25	50	15	—	
3.	Over 2·25 to 3·4	40	15	—	
4.	Over 3·4 to 5·1	25	20	—	
5.	Over 5·1 to 7·5	14	25	—	
6.	Over 7·5 to 10	11	30	—	
7.	Over 10 to 15	13	20	—	5·0±1·0
8.	Over 15 to 20	10	—	0·22	5·0±1·0

For Sl No. 1 to 7 — Test Set TS-330/TSM

For Sl No. 8 — Test Set TS-683/TSM

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